

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
 2. Figures to the right indicate marks.
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Q – 1 Give the answer of following questions. (14)

(A) Answer the following question very shortly (04)

- (1) State difference between “Akinete” and “Heterocyst”.
- (2) Why the color of *Batrachospermum* is violet or green even though it comes under Rhodophyceae class?
- (3) Give the two names of un-branched filaments algae.
- (4) Give the classification of *Nostoc*.

(B) Shortly answer any one question (03)

- (1) Describe thallus structure of *Batrachospermum*.
- (2) Describe cell structure of *Batrachospermum*.

(C) Answer any one question in detail (07)

- (1) Describe mature structure of spermatangium and carpogonium in *Batrachospermum*.
- (2) Discuss post fertilizations changes and carpospores germination in *Batrachospermum*.

Q – 2 Give the answer of following questions. (14)

(A) Answer the following question very shortly (04)

- (1) Give the name of any two diseases caused by *Aspergillus*.
- (2) Define relationship between phialides and sterigmata in *Aspergillus*?
- (3) Define lomasome?
- (4) Which two types of enzymes secreted by Yeast for nutrition?

(B) Shortly answer any one question (03)

- (1) Discuss budding in Yeast.
- (2) State the industrial application of *Aspergillus* and describe any one.

(C) Answer any one question in detail (07)

- (1) Describe different types of life cycle in Yeast.
- (2) Sexual reproduction in *Aspergillus*.

Q – 3 Give the answer of following questions. (14)

(A) Answer the following question very shortly (04)

- (1) How many thalluses can produce by germination of Gamete in *Marchantia*?
- (2) How can we morphologically differentiate male and female thallus of *Marchantia*?
- (3) During which phase in life cycle of *Marchantia* reduction division occurs?
- (4) How many peristome teeth are present in *Funaria*?

(B) Shortly answer any one question (03)

- (1) Describe cross section of *Marchantia* thallus.
- (2) Describe L. S. of *Funaria* archegonia.

(C) Answer any one question in detail (07)

- (1) Describe mature structure of *Marchantia* sporophyte.
- (2) Describe mature structure of *Funaria* sporophyte.

Q – 4 Give the answer of following questions. (14)

(A) Answer the following question very shortly (04)

- (1) What is ligule?
- (2) In *Selaginella*, xylem is usually made of tracheids and vessels are absent.
- True or False?
- (3) Which type of stele is observed in root of *Adiantum*?
- (4) How many flagella are present in antherozoids of *Adiantum*?

(B) Shortly answer any one question (03)

- (1) Discuss importance of heterospory
- (2) Describe Protostele and Haplostele

(C) Answer any one question in detail (07)

- (1) Describe L. S. of *Selaginella* strobilli.
- (2) Describe internal structure of *Adiantum* sporophyll.

Q – 5 Give the answer of following questions. (14)

(A) Answer the following question very shortly (04)

- (1) Which types of leaves are present in *Pinus*?
- (2) Why the wood of *Pinus* is known as nonporous?
- (3) In ground nut flowers are situated above ground but still fruits are produce underground
- explain the statement.
- (4) Give any two scientific name of Apiaceae family.

(B) Shortly answer any one question (03)

- (1) Describe the floral characters which come under Myrtales order.
- (2) Describe the floral characters which come under unisexual series.

(C) Answer any one question in detail (07)

- (1) Describe the Amaryllidaceae family with morphological characters, floral diagram, floral formula and any two examples.
- (2) Describe L.S. of female cone of *Pinus*.
